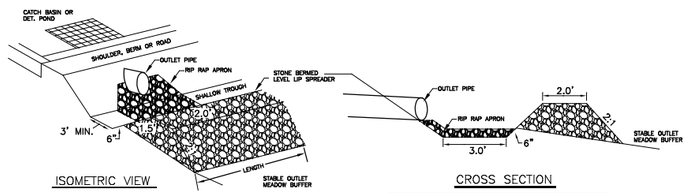
STONE BERM LEVEL SPREADER

E12



ISOMETRIC VIEW

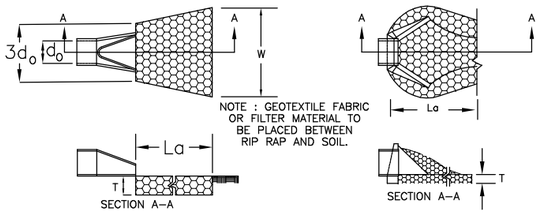
CROSS SECTION

SIEVE DESIGNATION	SIZE OF STONE (INCHES)
100%	12
84–100%	6
68–83%	3
42–55%	1
8–12%	NO. 4

1. CONSTRUCT THE LEVEL SPREADER LIP ON A 0% GRADE TO INSURE UNIFORM SPREADING OF RUNOFF.
2. LEVEL SPREADER SHALL BE CONSTRUCTED ON UNDISTURBED SOIL AND NOT ON FILL.
3. THE ENTIRE LEVEL LIP AREA SHALL BE PROTECTED BY PLACING EXCELSIOR ENFORCER MATTING BENEATH THE STONE. EACH STRIP SHALL OVERLAP BY AT LEAST SIX INCHES.
4. THE FLOW FROM THE LEVEL SPREADER SHALL OUTLET ONTO STABILIZED AREAS. WATER SHOULD NOT RE–CONCENTRATE IMMEDIATELY BELOW THE SPREADER.
5. MAINTENANCE: THE LEVEL SPREADER SHOULD BE CHECKED PERIODICALLY AND AFTER EVERY MAJOR STORM TO DETERMINE IF THE LIP HAS BEEN DAMAGED AND THE DESIGN CONDITIONS HAVE NOT CHANGED. ANY DETRIMENTAL SEDIMENT ACCUMULATION SHOULD BE REMOVED. IF STONE REMOVAL HAS TAKEN PLACE ON THE LIP, THEN THE DAMAGE SHOULD BE REPAIRED.

E13

PIPE OUTLET PROTECTION



PIPE OUTLET TO FLAT AREA WITH NO DEFINED CHANNEL

PIPE OUTLET TO WELL–DEFINED CHANNEL

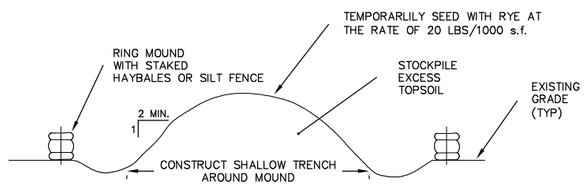
PIPE OUTLET PROTECTION CONSTRUCTION SPECIFICATIONS

1. THE SUB GRADE FOR THE FILTER MATERIAL, GEOTEXTILE FABRIC, AND RIP RAP SHALL BE PREPARED TO THE LINES AND GRADES SHOWN ON THE PLANS.
2. THE ROCK OR GRAVEL USED FOR FILTER OF RIP RAP SHALL CONFORM TO THE SPECIFIED GRADATION.
3. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF THE ROCK RIP RAP DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR REPAIRS OR JOINING TWO PIECES OF FABRIC SHALL BE A MINIMUM OF 12 INCHES.
4. STONE FOR THE RIP RAP MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.

TABLE 7–24––RECOMMENDED RIP RAP GRADATION RANGES				
d50 SIZE=	0.5	FEET	6	INCHES
% OF WEIGHT SMALLER THAN THE GIVEN d50 SIZE		SIZE OF STONE (INCHES) FROM		TO
100%		9		12
85%		8		11
50%		6		9
15%		2		3

E14

E15



TOPSOIL STOCKPILE MOUND

NOT TO SCALE

E16

NOTE: Temporary seed mix for stabilization of turf shall be winter rye or oats at a rate of 2.5 lbs. per 1000 s.f. and shall be placed prior to OCT. 15, if permanent seeding not yet complete.

SEEDING GUIDE

USE	SEEDING MIXTURE 1/	DROUGHTY	WELL DRAINED	MODERATELY WELL DRAINED	POORLY DRAINED
STEEP CUTS AND FILLS, BORROW AND DISPOSAL AREAS	A	FAIR	GOOD	GOOD	FAIR
	B	POOR	GOOD	FAIR	FAIR
	C	POOR	GOOD	EXCELLENT	GOOD
	D	FAIR	FAIR	GOOD	EXCELLENT
	E	FAIR	EXCELLENT	EXCELLENT	POOR
WATERWAYS, EMERGENCY SPILLWAYS, AND OTHER CHANNELS WITH FLOWING WATER.	A	GOOD	GOOD	GOOD	FAIR
	B	GOOD	EXCELLENT	EXCELLENT	FAIR
	D	GOOD	EXCELLENT	EXCELLENT	FAIR
LIGHTLY USED PARKING LOTS, ODD AREAS, UNUSED LANDS, AND LOW INTENSITY USE RECREATION SITES.	A	GOOD	GOOD	GOOD	FAIR
	B	GOOD	GOOD	FAIR	POOR
	C	GOOD	EXCELLENT	EXCELLENT	FAIR
	D	FAIR	GOOD	GOOD	EXCELLENT
PLAY AREAS AND ATHLETIC FIELDS. (TOPSOIL IS ESSENTIAL FOR GOOD TURF.)	F	FAIR	EXCELLENT	EXCELLENT	2/
	G	FAIR	EXCELLENT	EXCELLENT	2/

GRAVEL PIT, SEE NH–PM–24 IN APPENDIX FOR RECOMMENDATION REGARDING RECLAMATION OF SAND AND GRAVEL PITS.

1/ REFER TO SEEDING MIXTURES AND RATES IN TABLE 7–36.

2/ POORLY DRAINED SOILS ARE NOT DESIRABLE FOR USE AS PLAYING AREA AND ATHLETIC FIELDS.

RECOMMENDED *

SEEDING RATES

MIXTURE	POUNDS PER ACRE	POUNDS PER 1,000 Sq. Ft.
A. TALL FESCUE	20	0.45
CREEPING RED FESCUE	20	0.45
RED TOP	2	0.05
TOTAL	42	0.95
B. TALL FESCUE	15	0.35
CREEPING RED FESCUE	10	0.25
CROWN VETCH	15	0.35
OR		
FLAT PEA	30	0.75
TOTAL	40 OR 55	0.95 OR 1.35
C. TALL FESCUE	24	0.55
CREEPING RED FESCUE	24	0.55
BIRDS FOOT TREFOIL	REMOVED	REMOVED
TOTAL	48	1.10
D. TALL FESCUE	20	0.45
FLAT PEA	30	0.75
TOTAL	50	1.20
E. CREEPING RED FESCUE 1/	50	1.15
KENTUCKY BLUEGRASS 1/	50	1.15
TOTAL	100	2.30
F. TALL FESCUE 1	150	3.80

SEEDING SPECIFICATIONS

1. Grading and Shaping
   a. Slopes shall not be steeper than 2:1;3:1 slopes or flatter are preferred. Where mowing will be done, 3:1 slopes or flatter are recommended.
2. Seedbed Preparation
   a. Surface and seepage water should be drained or diverted from the site to prevent drowning or winter killing of the plants.
   b. Stones larger than 4 inches and trash should be removed because they interfere with seeding and future maintenance of the area. Where feasible, the soil should be tilled to a depth of about 4 inches to prepare a seedbed and mix fertilizer and lime into the soil. The seedbed should be left in reasonably firm and smooth condition. The last tillage operation should be performed across the slope wherever practical.
3. Establishing a Stand
   a. Lime and fertilizer should be applied prior to or at the time of seeding and incorporated into the soil kinds and amounts of lime and fertilizer should be based on an evaluation of soil tests. When a soil test is not available, the following minimum amounts should be applied:
   Agricultural limestone, 2 tons per acre or 100lbs. per 1,000 sq.ft.
   Nitrogen(N), 50lbs. per acre or 1.1lbs. per 1,000 sq.ft.
   Phosphate(P2O5), 100lbs. per acre or 2.2lbs. per 1,000 sq.ft.
   Potash(K2O), 100lbs. per acre or 2.2lbs. per 1,000 sq.ft.
   (Note: This is the equivalent of 500lbs. per acre of 10–20–20 fertilizer or 1,000lbs. per acre of 5–10–10.)
   b. Seed should be spread uniformly by the method most appropriate for the site. Methods include broadcasting, drilling and hydroseeding. Where broadcasting is used, cover seed with .25 inch of soil or less, by cultipacking or raking.
   C. Refer to Table(G–E1 this sheet) for appropriate seed mixtures and Table(H–E1 this sheet) for rates of seeding. All legumes (crownvetch, birdsfoot trefoil, and flatpea) must be inoculated with their specific inoculant.
   d. When seeded areas are mulched, plantings may be made from early spring to early October. When seeded areas are not mulched, plantings should be made from early spring to May 20 or from August 10 to September 1.
4. Mulch
   a. Hay, straw, or other mulch, when needed, should be applied immediately after seeding.
   b. Mulch will be held in place using appropriate techniques from the Best Management Practice for mulching. Hay or straw mulch shall be placed at a rate of 90lbs per 1000 s.f.
5. Maintenance to Establish a Stand
   a. Planted area should be protected from damage by fire, grazing, traffic, and dense weed growth.
   b. Fertilization needs should be determined by onsite inspections. Supplemental fertilizer is usually the key to fully complete the establishment of the stand because most perennial stake 2 to 3 years to become established.
   c. In waterways, channels, or swales where uniform flow conditions are anticipated, occasional mowing may be necessary to control growth of woody vegetation.

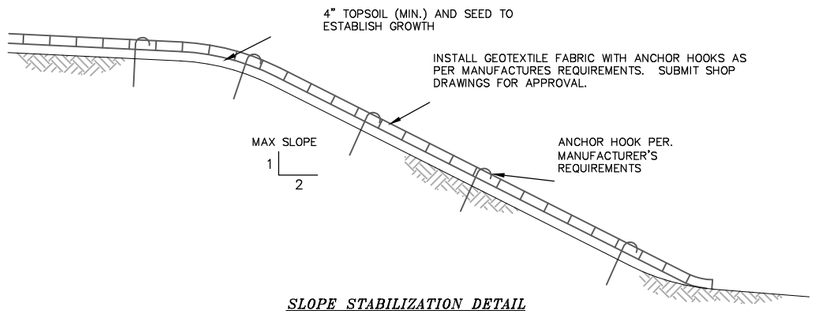
E17

WINTER STABILIZATION NOTES

1. All disturbed areas that do not have at least 85% vegetative coverage prior to October 15th, shall be stabilized by applying mulch at a rate of 3–4 tons per acre. All side slopes, steeper than 4:1, that are not directed to swales or detention basins, shall be lined with biodegradable/photodegradable "jute matting" (Excelsior's Curlex II or equal). All other slopes shall be mulched and tacked at a rate of 3–4 tons per acre. The application of mulch and/or jute matting shall not occur over existing snow cover. If the site is active after November 15th, any snow that accumulates on disturbed areas shall be removed. Prior to spring thaw all areas will be stabilized, as directed above.
2. All swales that do not have fully established vegetation shall be either lined with temporary jute matting or temporary stone check dams (appropriately spaced). Stone check dams will be maintained throughout the winter months. If the swales are to be matted with permanent liners or riprap with engineering fabric, this shall be completed prior to winter shutdown or as soon as they are properly graded and shaped.
3. Prior to Nov. 15th all roadway and parking areas shall be brought up to and through the bank run gravel application. If these areas' elevations are proposed to remain below the proposed subgrade elevation, the subgrade material shall be roughly crowned and a 3" layer of crushed gravel shall be placed and compacted. This will allow the subgrade to shed runoff and will reduce roadway erosion. This crushed gravel does not have to conform to NH DOT 304.3, but shall have between 15–25% passing the #200 sieve and the largest stone size shall be 2". If the site is active after November 15th, any accumulated snow shall be removed from all roadway and parking areas.
4. After October 15th, the end of New Hampshire's average growing season, no additional loam shall be spread on side slopes and swales. The stockpiles that will be left undisturbed until spring shall be seeded by this date. After October 15th, any new or disturbed piles shall be mulched at a rate of 3–4 tons per acre. All stockpiles that will remain throughout the winter shall be surrounded with silt fencing.

E18

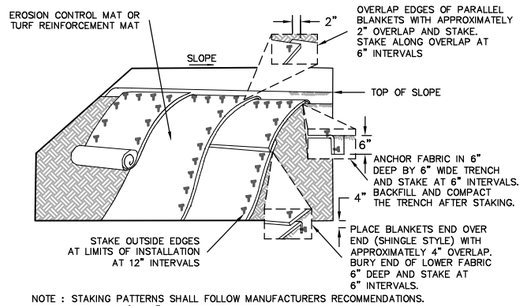
E19



SLOPE STABILIZATION DETAIL

NOT TO SCALE

E20



NOTE : STAKING PATTERNS SHALL FOLLOW MANUFACTURERS RECOMMENDATIONS. MINIMUM SPACING 3' – 0" O.C. ACROSS FABRIC.

INSTALLATION OF EROSION CONTROL FABRICS

NOT TO SCALE

E21

DEFINITION OF STABLE:

1. WHEN A BASE COURSE GRAVEL HAS BEEN INSTALLED IN AN AREA TO BE PAVED
2. WHEN A MINIMUM OF 85
3. WHEN A MINIMUM OF 3" OF NON–EROSIVE MATERIAL, SUCH AS STONE OR RIP–RAP HAS BEEN INSTALLED.
4. WHEN PROPER EROSION CONTROL BLANKETS, SUCH AS CURLEX II, C350 OR OTHER DOT APPROVED MATTING, HAS BEEN INSTALLED PROPERLY.

E22

CONSTRUCTION SEQUENCE:

1.) CUT AND REMOVE TREES IN CONSTRUCTION AREA ONLY AS REQUIRED

2.) CONSTRUCT AND/OR INSTALL TEMPORARY AND PERMANENT SEDIMENT EROSION AND DETENTION CONTROL FACILITIES AS REQUIRED.

3.) EROSION, SEDIMENT AND DETENTION CONTROL FACILITY SHALL BE INSTALLED & STABILIZED PRIOR TO ANY EARTH MOVING OPERATION & OR DIRECTING RUNOFF TO THEM.

4.) CLEAR, CUT AND DISPOSE OF DEBRIS IN APPROVED FACILITY

5.) CONSTRUCT TEMPORARY CULVERTS AS REQUIRED, OR DIRECTED

6.) CONSTRUCT ROADWAYS FOR ACCESS TO DESIRED CONSTRUCTION AREAS. ALL ROADS SHALL BE STABILIZED IMMEDIATELY AFTER GRADING

7.) INSTALL PIPE AND CONSTRUCTION ASSOCIATED APPURTENANCES AS REQUIRED OR DIRECTED. ALL DISTURBED AREAS SHALL STABILIZED IMMEDIATELY AFTER GRADING.

8.) CONSTRUCT FOUNDATION AND CONCRETE PAD.

9.) BEGIN PERMANENT AND TEMPORARY SEEDING AND MULCHING. ALL CUT AND FILL SLOPES AND DISTURBED AREAS SHALL BE SEEDED OR MULCHED AS REQUIRED, OR DIRECTED. NO AREA IS ALLOWED TO BE DISTURBED FOR A LENGTH OF TIME THAT EXCEEDS 60 DAYS BEFORE BEING STABILIZED. DAILY, OR AS REQUIRED.

10.) CONSTRUCT TEMPORARY BERMS, DRAINS DITCHES, SILT FENCES, SEDIMENT TRAPS, ETC. MULCH AND SEED AS REQUIRED.

11.) INSPECT AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION

12.) COMPLETE PERMANENT SEEDING AND LANDSCAPING.

13.) REMOVE TEMPORARY EROSION CONTROL MEASURES AFTER SEEDING AREAS HAVE ESTABLISHED THEMSELVES AND SITE IMPROVEMENTS ARE COMPLETE.

14.) SMOOTH AND REVEGETATE ALL DISTURBED AREAS.

15.) FINISH GRAVELLING ALL ROADWAYS

E-102

REVISION	DATE	DESCRIPTION

CONSTRUCTION DETAILS
FOR
STEPPINGSTONE FARM PARTNERSHIP
COMMERCE WAY
BARRINGTON, N.H.
TAX MAP 250, LOT 79

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (332–2863)

SCALE : AS MARKED
DATE : DECEMBER 13, 2012
FILE NO. : DB 2012–120

THE STATE OF NEW HAMPSHIRE
DAVID A. BERRY No. 1088
REGISTERED PROFESSIONAL ENGINEER